

CHAPTER 9
AIRPORT DEVELOPMENT SCHEDULE AND FINANCIAL ANALYSIS
MASTER PLAN UPDATE

Nogales International Airport
Santa Cruz County

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CHAPTER 9 AIRPORT DEVELOPMENT SCHEDULE & FINANCIAL ANALYSIS

9.1 INTRODUCTION

The objective of this chapter is to establish a capital improvement program (CIP) for the proposed improvements at the Nogales International Airport and identify the financial implications associated with implementing that program.

9.2 CAPITAL IMPROVEMENT PROGRAM

This section summarizes the capital improvement program (CIP) for Nogales International Airport, which includes project descriptions, cost estimates, and timeframes for completion. Improvements that are identified are "demand driven", and will be developed according to available funding.

The CIP is based on the facility requirements identified for the 20-year planning period in Chapter 4 and the "Preferred Development Plan" presented in Chapter Five (5) and subsequently refined. The CIP covers proposed development in three phases through the year 2020. Contingency development is based on demand beyond 2020 and is, therefore, not specifically outlined in the CIP. However, contingency development includes expansion of GA, Terminal Area, FBO/Flight School, Cargo, and U.S. Customs/Border Patrol.

Table 9-1 summarizes the CIP. Preliminary cost estimates, in 2001 dollars, have been prepared for each project which includes 20 percent for the cost of engineering and contingencies as well as the project administration fee. As shown, the 20-year CIP totals approximately \$7.5 million. Additional details of these costs estimates are provided in Appendix G.

Projects have been scheduled according to anticipated demand and allocated to one of three phases during the twenty-year planning period -- two five-year phases and one ten-year phase. Phase I projects are outlined on an annual basis through 2005, while Phase II and Phase III projects are only identified by phase and listed by anticipated order of priority.

Exhibit 9-1 illustrates the proposed three-phase development program. Phase I projects, illustrated in red, represent the Airport's highest priorities such as the relocation of the displaced threshold, improvements to Runway 03-21 safety area, installation of additional security fencing, and the construction of 11 additional hangars to meet demand. Phase II projects, such as the installation of additional security lighting and automated security gates, construction of additional hangars, and the expansion of the terminal building, are color-coded green and proposed between the years 2006 and 2010. Blue identifies Phase III development -- the last phase of the master planning window (2011-2020) and primarily consists of projects associated with the ongoing pavement maintenance program.

Contingency development discussed previously includes construction of additional facilities beyond the demand-driven needs (per forecasts). For planning purposes, this development is graphically illustrated in gray on Exhibit 9-1, and is generally proposed on the east side of the airport as the capacity of the west side is consumed.

TABLE 9-1 CAPITAL IMPROVEMENT PROGRAM

	Year	Project Description	Total Project Cost
PHASE I	2001	Relocate Runway 21 displaced threshold from 1912' to 900' incl. markings, lighting	\$ 25,000
	2002	Grade Runway 3 safety area (RSA) to meet FAA design standards	\$ 550,000
	2002	Widen remaining 6,000' of Runway 3-21 from 90 to 100'	\$ 300,000
	2002	Pavement Preservation - Runway; Relocate Holdlines from 125' to 250'	\$ 1,000,000
	2002	Install PAPI to replace SAVASI; Upgrade Signage	\$ 200,000
	2002	Environmental Assessment for Land Acquisition & Roadway	\$ 100,000
	2002	Land Acquisition	\$ 200,000
	2002	Acquire Sweeper	\$ 150,000
	2002	Upgrade MIRL & Electrical Vault	\$ 350,000
	2003	Install Terminal/Apron Area Security Fencing & Upgrade Perimeter Fencing	\$ 500,000
	2003	Install MITL to replace taxiway reflectors	\$ 410,000
	2003	Bury electrical lines on west side of airport and expand telephone service airport-wide	\$ 80,000
	2004	Widen two taxiways to 75' for C-IV aircraft to minimize structural stress from C-130 taxi operations	\$ 200,000
	2004	Install Emergency Generator (airside)	\$ 165,000
	2005	Construct additional hangars (+11)	\$ 330,000
	2005	Construct airport perimeter road	\$ 350,000
		Phase I	\$ 4,910,000
PHASE II		Install Additional Security Lighting	\$ 25,000
		Install Automated Sliding Gates w/ Card Reader System	\$ 50,000
		Pavement Preservation - Taxiways/Taxilanes 2006	\$ 100,000
		Pavement Preservation - Apron Areas 2006	\$ 45,000
		Purchase additional ARFF equipment	\$ 400,000
		Update Airport Master Plan 2007	\$ 120,000
		Pavement Preservation - Runway 2007	\$ 150,000
		Construct Apron	\$ 160,000
		Expand Terminal	\$ 150,000
		Construct additional hangars (+5)	\$ 150,000
		Phase II	\$ 1,350,000
PHASE III		Pavement Preservation - Taxiways/Taxilanes 2011	\$ 100,000
		Pavement Preservation - Apron Areas 2011	\$ 45,000
		Update Airport Master Plan 2012	\$ 120,000
		Pavement Preservation - Runway 2012	\$ 150,000
		Pavement Preservation - Taxiways/Taxilanes 2016	\$ 100,000
		Pavement Preservation - Apron Areas 2016	\$ 45,000
		Update Airport Master Plan	\$ 120,000
		Pavement Preservation - Runway 2017	\$ 150,000
		Construct additional hangars (+14)	\$ 420,000
		Phase III	\$ 1,250,000
Total Cost (2001-2020)			\$ 7,510,000

NOTE: Figures may vary due to rounding. Figures are estimates. Costs are in 2001 dollars.

9.2.1 Phase I Development

Phase I development will focus on accommodating the most immediate needs of the airport. The program is presented year-by-year for the first five years (2001-2005). Many of the projects included in Phase I are high priorities for the County as well as the FAA and ADOT. Phase I improvements, described here, are estimated at \$4.9 million total.

2001 – Relocate Runway 21 Displaced Threshold \$ 25,000

Runway 21's displaced threshold is currently at 1,912 feet and should be moved east 1,012 feet for a new location at 900 feet from Runway 21 end (includes markings and lighting). This relocation was approved by the FAA in September 2001.

2002 – Improve Runway 3 and 21 Safety Area to Meet FAA Design Standards \$ 550,000

Runway 3's safety area currently extends 150 feet beyond the runway end. The safety area should extend 1,000 feet beyond the runway end and 400 feet wide (200 feet either side of centerline) to meet FAA requirements for C-II aircraft operations. Runway 21's safety area meets B-II standards (former ARC), but should be upgraded to C-II standards, too. This work will also include associated drainage and soil erosion control features.

2002 – Widen Remaining 6,000 feet of Runway 3-21 from 90 to 100 feet \$ 300,000

Approximately 1,200 feet of Runway 3-21 is currently at 100 feet wide as part of a runway extension project completed in 1996. This project proposes to widen the remainder of the runway to this width maintaining the pavement strength at 30,000 SWL / 50,000 DWL.

2002 – Runway Pavement Preservation and Relocation of Holdlines \$ 1,000,000

A pavement preservation program is underway state-wide and will guide airport owners and sponsors with prioritized maintenance and repair of their airfield facilities. This Nogales International project includes preservation efforts specifically for Runway 3-21. This project is identified every five years in the CIP. As part of this project in Phase I, the current holdline markings should be relocated to 250 feet from runway centerline from their current 125-foot location. The relocated holdline markings are necessary to maintain proper separation of aircraft based on the regular operations of C-II aircraft operations.

2002 – Install PAPI to replace SAVASI & Upgrade Signage \$ 200,000

The current SAVASI used on Runway 3-21 is outdated technology and should be replaced with a new PAPI system. This project should follow the relocation of the displaced threshold when the SAVASI on Runway 21 would otherwise need to be moved. Guidance signage will also be upgraded as part of this project.

2002 – Environmental Assessment \$ 100,000

This project consists of preparing an environmental assessment (EA) in accordance with FAA Order 5050.4A, the Airport Environmental Handbook (FAA, 1985). The EA would address the potential environmental impacts associated with the proposed land acquisition and construction of an airport perimeter road.

2002 – Land Acquisition \$ 200,000

There are three parcels on the east side of the airport to be acquired. These three parcels were previously identified as airport property by the County and have been represented as airport property on numerous historical drawings of the airport. However, recent research has confirmed that these parcels belong to the adjacent landowner to the south. These parcels are approximately 1.9, 4.8, and 28.1 acres in size. The reduced-size property map shown in the previous chapter, Airport Plans, depicts these three parcels. In addition, a portion of the RPZ for Runway 3 is outside of the airport boundary. Per FAA guidelines, an aviation easement should be acquired. Further, an existing roadway easement for an adjacent private property owner crosses a portion of the RPZ for Runway 3. It is recommended that the roadway easement be terminated in conjunction with the development of the proposed perimeter roadway identified for 2005.

2002 –Acquire Sweeper \$ 150,000

Nogales International is in need of a sweeper to assist in the proper and safe maintenance of the airfield by keeping the runway and taxiway system clear of foreign objects and debris.

2002 –Upgrade MIRL and Electrical Vault \$ 350,000

The existing runway lighting system (MIRL) is outdated making it more difficult and more costly to maintain. The system should be upgraded with present day MIRL technology. The existing electrical vault should also be upgraded to handle changes in the electrical loads.

2003 –Install Terminal/Apron Area Security Fencing & Upgrade Perimeter Fencing \$ 500,000

The development and progressive implementation of new and changing security guidelines at airports nationwide call for additional security measures. These measures, initiated at both state and federal levels, suggest that additional security fencing may be necessary. This project proposes the installation of additional fencing around the aircraft apron and terminal areas where the security concerns may exist. Further, the existing perimeter fencing should be upgraded to improve total airport security.

2003 – Install MITL to replace Taxiway Reflectors \$ 410,000

This project proposes to replace the existing taxiway reflectors with a medium intensity taxiway lighting system (MITL) to improve ground maneuvering safety during nighttime or other low visibility conditions.

2003 – Bury west-side electrical lines and expand telephone service airport-wide \$ 80,000

This project includes burying electrical lines which are perceived as an obstruction to approaching and departing helicopter traffic. While the electrical lines are not specifically an airspace obstruction based on the preliminary analysis, their close proximity to air operation areas suggest that their underground burial will offer an increased margin of safety. This project also includes the simultaneous installation of additional telephone service via underground lines.

2004 –Widen two (2) Taxiways to 75 feet \$ 200,000

Although the airport is identified as a C-II airport, the occasional C-IV operations have caused some structural stress to taxiway exits during ground maneuvering by C-130 aircraft. Since widening of all airfield pavements to accommodate such occasional operations is not necessary nor financially practical, this project proposes to remedy this problem with the widening of Taxiways "C" and "F" to 75 feet.

2004 – Install Emergency Generator **\$ 165,000**

An additional emergency generator is required to support proposed runway and taxiway lighting system upgrades. The existing generator only provides service to the existing system.

2005 – Construct 11 additional hangars for aircraft storage **\$ 330,000**

Based on projected demand, it is anticipated that a total of 11 additional hangars are required within the first five years of the master planning window. These hangars may vary in size based on needs. This project includes the associated taxilanes to serve this development area.

2005 – Construct airport perimeter road **\$ 350,000**

This project is proposed to initially provide airport service access from the existing roads at the terminal area around the south end of the airport over to the east side at midfield. The roadway will be approximately 10,000 linear feet and 24 feet wide. Ultimately, a portion of this road is proposed to serve as public access to east side airport development once the west side nears capacity. It should be noted that this access will be fenced off from the rest of the airport to maintain security while offering public access. This project also includes a possible secondary access off of SR 82. Once construction is completed, the County should terminate the existing roadway easement for the private property owner adjacent to the airport.

9.2.2 Phase II Development

This section presents project descriptions for those improvements proposed during Phase II (2006-2010) of the development period. As previously shown in Table 9-1, nearly \$1.4 million total is required to fund these projects through 2010.

Install Additional Security Lighting **\$ 25,000**

Additional security lighting is proposed to increase lighting at airport around the apron and terminal area. This project proposes the installation of five lights.

Install Automated Sliding Gates with Card Readers **\$ 50,000**

This project proposes the installation of two automated sliding gates with a card reader system to protect the Air Operations Area (AOA) and improve airfield security and safety. The card readers will enhance airfield security by allowing access to airport users only.

Taxiway/Taxilane Pavement Preservation **\$ 100,000**

A pavement preservation program is underway state-wide and will guide airport owners and sponsors with prioritized maintenance and repair of their airfield facilities. This Nogales International project includes preservation efforts specifically for the taxiway/taxilane system.

Apron Area Pavement Preservation **\$ 45,000**

A pavement preservation program is underway state-wide and will guide airport owners and sponsors with prioritized maintenance and repair of their airfield facilities. This Nogales International project includes preservation efforts specifically for the aircraft apron areas.

Purchase additional ARFF Equipment **\$ 400,000**

It is recommended that the County/Airport acquire additional ARFF equipment. This should include a firefighting vehicle to support the specialized needs of aircraft firefighting and rescue.

Airport Master Plan Update 2007**\$ 120,000**

The FAA and ADOT Aeronautics recognize that any significant changes at an airport requires that the Master Plan be updated. For most airports, these changes occur over a period of time and typically support the need for an update every five to seven years. The Nogales International Airport Master Plan will likely require an update in Phase II of the planning period. The update should include a review of the existing conditions, aviation demand forecasts, and development alternatives (related to any changes in demand). Necessary adjustments to the future capital development program should also be determined.

Runway Pavement Preservation**\$ 150,000**

This project is a recurring Runway 3-21 pavement preservation project every five years and will continue to be a part of the state-wide pavement preservation program as identified in Phase I.

Construct additional 20,000 square feet of Cargo Apron**\$ 160,000**

Based on projected increases in cargo activity, it is anticipated that an additional 20,000 s.f. of cargo staging apron will be required by 2010. This project includes design, construction, grading and drainage, markings, lighting, taxiway connector, and taxiway connector signage.

Expand Terminal by 1,514 square feet**\$ 150,000**

Based on increasing aircraft and passenger traffic at Nogales International, the terminal building should be expanded by an additional 1,514 s.f. in Phase II. The internal use and configuration of the terminal should be revisited prior to expansion to ensure the changing needs of pilots, passengers, FBO, concessions, etc. are considered.

Construct five (5) additional hangars for aircraft storage**\$ 150,000**

Based on projected demand, it is anticipated that a total of five (5) additional hangars are required during Phase II of the master planning window. These hangars may vary in size based on needs. This project includes the associated taxilanes to serve this development area.

9.2.3 Phase III Development

The last ten years of the planning period includes development proposed between 2011 and 2020 and primarily includes pavement preservation projects and planning updates. This phase includes projects totaling nearly \$1.3 million.

Taxiway/Taxilane Pavement Preservation**\$ 100,000**

This project is a recurring taxiway/taxilane system pavement preservation project every five years and will continue to be a part of the state-wide pavement preservation program as identified in Phases I and II.

Apron Area Pavement Preservation**\$ 45,000**

This project is a recurring apron area pavement preservation project every five years and will continue to be a part of the state-wide pavement preservation program as identified in Phases I and II.

Airport Master Plan Update 2012**\$ 120,000**

The FAA and ADOT Aeronautics recognize that any significant changes at an airport requires that the Master Plan be updated. For most airports, these changes occur over a period of time

and typically support the need for an update every five to seven years. The Nogales International Airport Master Plan will likely require two updates (2012 and 2017) during Phase III of the planning period. The update should include a review of the existing conditions, aviation demand forecasts, and development alternatives (related to any changes in demand). Necessary adjustments to the future capital development program should also be determined.

Runway Pavement Preservation**\$ 150,000**

This project is a recurring Runway 3-21 pavement preservation project every five years and will continue to be a part of the state-wide pavement preservation program as identified in Phases I and II. Therefor it appears twice in phase III (2012 and 2017).

Taxiway/Taxilane Pavement Preservation**\$ 100,000**

This project is a recurring taxiway/taxilane system pavement preservation project every five years and will continue to be a part of the state-wide pavement preservation program as identified in Phases I and II.

Apron Area Pavement Preservation**\$ 45,000**

This project is a recurring apron area pavement preservation project every five years and will continue to be a part of the state-wide pavement preservation program as identified in Phases I and II.

Airport Master Plan Update 2017**\$ 120,000**

The FAA and ADOT Aeronautics recognize that any significant changes at an airport requires that the Master Plan be updated. For most airports, these changes occur over a period of time and typically support the need for an update every five to seven years. The Nogales International Airport Master Plan will likely require its last update of the planning period in 2017. The update should include a review of the existing conditions, aviation demand forecasts, and development alternatives (related to any changes in demand). Necessary adjustments to the future capital development program should also be determined.

Construct 14 additional hangars for aircraft storage**\$ 420,000**

Based on projected demand, it is anticipated that a total of 14 additional hangars are required during the last ten years (Phase III) of the master planning window. These hangars may vary in size based on needs. This project includes the associated taxilanes to serve this development area.

At the completion of Phase III, Nogales International Airport will be fully capable of accommodating the aviation activity anticipated through the planning period and beyond with the widest range of operating conditions.

9.3 FINANCIAL ANALYSIS

Following the establishment of a preliminary Capital Improvement Program for Nogales International, the County's financial ability to fund their share of costs is reviewed. This includes a review of historical airport revenue and expense estimates provided by the County and a projection of future airport revenues and expenses through the end of the planning period.

9.3.1 Revenues

Local operating revenues for Nogales International Airport include airport leases, tiedown fees, fuel sales, and other miscellaneous revenues. Airport leases currently contribute the largest portion (65%) of total airport revenues. Revenue projections for the master planning period are based on a conservative 1.5 percent annual growth rate (beginning in 2002) plus estimated lease revenues for new hangar development, fees for additional tiedowns, and increases in fuel sales associated with increased operations.

9.3.2 Expenses

Airport expenses include operations and maintenance (O&M), administration (including contracts), equipment, and other/miscellaneous expenses. The O&M expense category represents approximately 63 percent of total airport expenses while the administrative expense category represents 25 percent. Airport expenses are projected using a 1.2 percent increase annually through the planning period.

9.3.3 Cash Flow

Table 9-2 outlines the estimated cash flow by phase at Nogales International Airport through the planning period. As shown, the airport operates and will continue to operate with a positive cash flow. Although Table 9-2 reflects a \$2900-dollar net for the baseline year, the airport's projected revenue growth and moderate expense growth means increasing net cash flow through the planning period for an average of more than \$55,000 annually. This revenue can be used in combination with County assistance to fund airport capital improvements.

TABLE 9-2 PROJECTED CASH FLOW SUMMARY

Year	Total Revenues	Total Expenses	Net Cash Flow
Baseline (2000)	\$ 80,900	\$ 78,000	\$ 2,900
Phase I (2001-2005)	\$ 450,337	\$ 399,473	\$ 50,864
Phase II (2006-2010)	\$ 653,492	\$ 424,024	\$ 229,468
Phase III (2011-2020)	\$ 1,771,179	\$ 927,827	\$ 843,352
Total	\$ 2,875,008	\$ 1,751,324	\$ 1,123,684

Notes: Historical figures (2000) are estimated using information provided by the County & FBO. Revenue and Expense projections through 2020 are in 2001 dollars.

9.3.4 Funding Sources

Capital funding for Nogales International has primarily been from the Federal Airport Improvement Program (AIP), Arizona State Aeronautics grants, and local (County) funding. These and other funding sources are described here.

9.3.4.1 Federal

The Federal Airport Improvement Program (AIP) is the primary source of airport funding for proposed capital improvements. The Airport and Airway Trust Fund supports the AIP. The Trust Fund provides a stable funding source whereby users pay for the services they receive. The Trust Fund is built on user fees/taxes derived from the aviation community off fuel, aircraft tires, airline tickets, domestic air cargo, and international departure fees. Congress prepares a budget for the outflows of this fund as part of the annual Federal Budget negotiations.

In 1992, Trust Fund appropriations peaked at \$2.264 billion before beginning a decline to a low of \$1.372 billion in 1996. Responding to concerns within the aviation community, AIP appropriations were increased to \$1.46 billion in 1997, \$1.7 billion in 1998, \$1.95 billion in 2000, and then a jump to \$3.2 billion in 2001. This FY 2001 jump is attributed to the Wendell H. Ford Aviation Investment and Reform Act of the 21st Century referred to as FAIR21. FAIR21 included a \$40-billion multi-year FAA reauthorization that included AIP authorizations of \$3.2, \$3.3, and \$3.4 billion for FY 2001, 2002, and 2003, respectively. Of the \$3.2 billion authorization for FY 2001, an estimated \$1.95 billion was initially proposed for appropriation, but later the full \$3.2 billion was appropriated resulting in an increase of more than 65 percent over the prior year.

FAIR 21 also increased the Passenger Facility Charge (PFC) ceiling referred to as a "head tax" from \$3 to \$4.50 per boarding passenger. In return for imposing a PFC above \$3, large and medium hub airports will give back 75 percent of their AIP formula funds. This will result in more AIP funding available for smaller airports.

The funding identified for Nogales' 20-year CIP assumes the continued distribution of AIP funds based on the same formula used in the past. In Arizona, the standard AIP grant share is 91.06 percent of the project cost. Projects that are eligible for grants include airport planning, airport capacity enhancement/ preservation projects, noise compatibility programs, and some airport development projects.

Eligible development projects include facilities or equipment associated with the construction, improvement, or repair (excluding routine maintenance) of an airport. Hangars, auto parking areas, most airport buildings, art objects, and decorative landscaping are ineligible. With certain restrictions, buildings that house Aircraft Rescue and Firefighting (ARFF), security, and certain types of maintenance equipment, as well as terminal buildings, may be eligible for federal funding.

9.3.4.2 Entitlement Funds

For those airports with scheduled commercial passenger services, federal fund appropriations from the Airport and Airway Trust Fund have been based on a legislated apportionment formula relative to the number of enplaned passengers and state population. Enplaning passengers are the paid passengers departing an airport on commercial scheduled aircraft as reported by the airline to the FAA. These funds are often referred to as "Entitlements" and are traditionally used as a source of federal funds for CIP grants for commercial service airports. Nogales International Airport is ineligible for this funding source since it does not have scheduled air carrier service.

9.3.4.3 Discretionary Funds

Federal discretionary funds include money not distributed under the apportioned entitlements as well as the forgone PFC revenues that were not deposited into the Small Airport Fund. FAA-

approval of these grants is based on project priority and other selection criteria. The discretionary fund is subject to certain spending criteria and three set-asides to include airport noise, the military airport program (MAP), and grants for reliever airports. At least 34% of discretionary grants are set-aside for noise compatibility planning and for implementing noise abatement and compatibility programs. MAP has at least 4% of discretionary funds for conversion and dual use of current and former military airports (15 airports may participate). For metropolitan areas suffering from flight delays, there is a discretionary set-aside of 2/3 of 1% for reliever airports.

Prior to April 1, 1999, discretionary funds also had a ceiling. However, the Interim Federal Aviation Administration Act of 1999 (S. 643), signed by the President on March 31, 1999, eliminated the estimated \$300-million ceiling. FY1999 and FY2000 funding levels were high enough that the adjustment mechanism has not been activated. The funding levels projected in FAIR21 are also well above the levels that would trigger an adjustment.

9.3.4.4 State

The State of Arizona has an Aviation Fund built on aviation flight property taxes. The fund is administered by the Arizona Department of Transportation Aeronautics Division. These funds are available to match both appropriated federal funds and local funds programmed for capital projects. For federally funded projects, the State will contribute 4.47 percent. Other projects not funded by or ineligible for federal funds may be State-funded up to 90%.

9.3.4.5 Local

In the past, Santa Cruz County has contributed the necessary funds for capital improvement projects from the County budget as well as airport revenues. However, development funding could be obtained from private investment.

Projects designed and constructed by the private sector represent another possible source for development funding. Such projects can involve substantial private commitments and result in significant contributions of facilities and amenities to meet the future needs of the users. Potential projects funded through private resources include additional general aviation hangars, fixed base operator (FBO) and terminal facilities, and aviation-related industrial development.

Table 9-3 summarizes the estimated federal, state, and local share by Phase based on current federal and state funding formulas and eligibility. As shown, the local funding requirements for the first five years (Phase I) of the planning period total approximately \$ 698,600.

TABLE 9-3 SUMMARY OF FUNDING BY PHASE

	Year	Project Description	Federal	State	Local/Other	Total Project Cost
PHASE I	2001	Relocate Runway 21 displaced threshold from 1912' to 900' incl. markings, lighting			\$ 25,000	\$ 25,000
	2002	Grade Runway 3 safety area (RSA) to meet FAA design standards	\$ 500,830	\$ 24,585	\$ 24,585	\$ 550,000
	2002	Widen remaining 6,000' of Runway 3-21 from 90 to 100'	\$ 273,180	\$ 13,410	\$ 13,410	\$ 300,000
	2002	Pavement Preservation - Runway; Relocate Holdlines from 125' to 250'		\$ 900,000	\$ 100,000	\$ 1,000,000
	2002	Install PAPI to replace SAVASI; Upgrade Signage	\$ 182,120	\$ 8,940	\$ 8,940	\$ 200,000
	2002	Environmental Assessment for Land Acquisition & Roadway	\$ 91,060	\$ 4,470	\$ 4,470	\$ 100,000
	2002	Land Acquisition	\$ 182,120	\$ 8,940	\$ 8,940	\$ 200,000
	2002	Acquire Sweeper		\$ 135,000	\$ 15,000	\$ 150,000
	2002	Upgrade MIRL & Electrical Vault	\$ 318,710	\$ 15,645	\$ 15,645	\$ 350,000
	2003	Install Terminal/Apron Area Security Fencing & Upgrade Perimeter Fencing	\$ 455,300	\$ 22,350	\$ 22,350	\$ 500,000
	2003	Install MITL to replace taxiway reflectors	\$ 373,346	\$ 18,327	\$ 18,327	\$ 410,000
	2003	Bury electrical lines on west side of airport and expand telephone service airport-wide			\$ 80,000	\$ 80,000
	2004	Widen two taxiways to 75' for C-IV aircraft to minimize structural stress from C-130 taxi operations	\$ 182,120	\$ 8,940	\$ 8,940	\$ 200,000
	2004	Install Emergency Generator (airside)	\$ 150,249	\$ 7,376	\$ 7,376	\$ 165,000
	2005	Construct additional hangars (+11)			\$ 330,000	\$ 330,000
	2005	Construct airport perimeter road	\$ 318,710	\$ 15,645	\$ 15,645	\$ 350,000
		Phase I	\$ 3,027,745	\$ 1,183,628	\$ 698,628	\$ 4,910,000
PHASE II		Install Additional Security Lighting	\$ 22,765	\$ 1,118	\$ 1,118	\$ 25,000
		Install Automated Sliding Gates w/ Card Reader System	\$ 45,530	\$ 2,235	\$ 2,235	\$ 50,000
		Pavement Preservation - Taxiways/Taxilanes 2006		\$ 90,000	\$ 10,000	\$ 100,000
		Pavement Preservation - Apron Areas 2006		\$ 40,500	\$ 4,500	\$ 45,000
		Purchase additional ARFF equipment		\$ 360,000	\$ 40,000	\$ 400,000
		Update Airport Master Plan 2007	\$ 109,272	\$ 5,364	\$ 5,364	\$ 120,000
		Pavement Preservation - Runway 2007		\$ 135,000	\$ 15,000	\$ 150,000
		Construct Apron	\$ 145,696	\$ 7,152	\$ 7,152	\$ 160,000
		Expand Terminal		\$ 135,000	\$ 15,000	\$ 150,000
		Construct additional hangars (+5)			\$ 150,000	\$ 150,000
		Phase II	\$ 323,263	\$ 776,369	\$ 250,369	\$ 1,350,000
PHASE III		Pavement Preservation - Taxiways/Taxilanes 2011		\$ 90,000	\$ 10,000	\$ 100,000
		Pavement Preservation - Apron Areas 2011		\$ 40,500	\$ 4,500	\$ 45,000
		Update Airport Master Plan 2012	\$ 109,272	\$ 5,364	\$ 5,364	\$ 120,000
		Pavement Preservation - Runway 2012		\$ 135,000	\$ 15,000	\$ 150,000
		Pavement Preservation - Taxiways/Taxilanes 2016		\$ 90,000	\$ 10,000	\$ 100,000
		Pavement Preservation - Apron Areas 2016		\$ 40,500	\$ 4,500	\$ 45,000
		Update Airport Master Plan	\$ 109,272	\$ 5,364	\$ 5,364	\$ 120,000
		Pavement Preservation - Runway		\$ 135,000	\$ 15,000	\$ 150,000
		Construct additional hangars (+14)			\$ 420,000	\$ 420,000
		Phase III	\$ 218,544	\$ 541,728	\$ 489,728	\$ 1,250,000
		Total Cost (2001-2020)	\$ 3,569,552	\$ 2,501,724	\$ 1,438,724	\$ 7,510,000

¹ "Other" represents private funding sources

NOTE: Figures may vary due to rounding. Figures are estimates. Costs are in 2001 dollars.

Economic Feasibility

Table 9-4 summarizes the airport's cash position for each phase based on the figures presented earlier in Tables 9-2 and 9-3. These numbers represent total funding required beyond federal and state contributions. Local funds are assumed to come from the County. However, some of this financial burden can be passed on to private investors or other sources. This table is presented to determine the economic feasibility of implementing the 20-year CIP. The total deficit represents an average annual deficit of approximately \$16,000 per year.

TABLE 9-4 ECONOMIC FEASIBILITY

	Net Cash Flow (from Table 9-2)	Local* Funding Required for CIP (from Table 9-3)	Net Balance (Surplus/Deficit)
Phase I – 2005	\$ 50,864	\$ 698,628	\$ (647,764)
Phase II – 2010	\$ 229,468	\$ 250,369	\$ (20,900)
Phase III – 2020	<u>\$ 843,352</u>	<u>\$ 489,728</u>	<u>\$ 353,624</u>
Total	\$ 1,123,684	\$ 1,438,724	\$ (315,040)

* Represents total funding required beyond federal, state, and other contributions.

9.4 CONCLUSIONS AND RECOMMENDATIONS

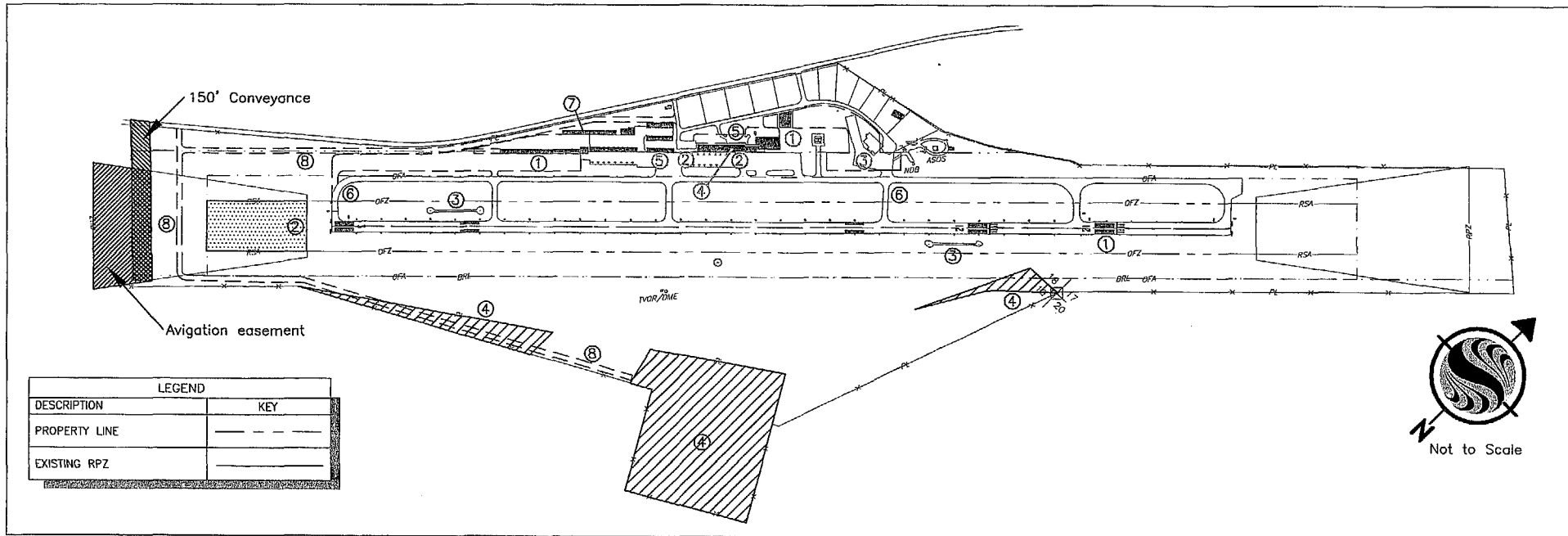
The Nogales International Airport requires a total of \$7.5 million to fund the 20-year capital improvement program. Since federal and state funding will not cover approximately \$ 1.4 million of this total amount, the funding will have to come from airport revenues, local government funding sources, and private investors.

- Phase 1
- ① Relocate Runway 21 displaced threshold from 1912' to 900'
 - ② Grade Runway 3 safety area (RSA) to meet FAA design standards
 - ③ Widen remaining 6,000' of Runway 3-21 from 90 to 100'
 - ④ Pavement Preservation - Runway
 - ⑤ Install PAPI to replace SAVAS
 - ⑥ Environmental Assessment
 - ⑦ Land Acquisition to incl. roadway easement
 - ⑧ Acquire Sweeper
 - ⑨ Upgrade MIREL & Electrical Vault
 - ⑩ Security Fencing
 - ⑪ MITL to replace taxiway reflectors
 - ⑫ Bury electrical lines on west side and expand telephone service
 - ⑬ Widen two taxiways to 75'
 - ⑭ Install Emergency Generator (airside)
 - ⑮ Additional hangars (+11)
 - ⑯ Airport perimeter road around south end of airport

- Phase 2
- ① Additional Security Lighting
 - ② Automated Sliding Gates w/ Card Reader System
 - ③ Pavement Preservation - Taxiways/Taxilanes, Apron, Runway
 - ④ Additional ARFF equipment
 - ⑤ Update Airport Master Plan
 - ⑥ Construct Apron
 - ⑦ Expand Terminal
 - ⑧ Additional hangars (+5)

- Phase 3
- Pavement Preservation - Taxiways/Taxilanes, Apron, Runway
- Update Airport Master Plan
- ① Additional hangars (+14)
- Contingence
- Airport Maintenance Building & Yard
- Expand auto parking adjacent to terminal area/FBO
- Two additional helipads on west side
- ARFF Bldg
- Relocate TVOR
- Additional cargo facilities on east side incl. Infrastructure
- Additional US Customs facility on east side
- Air Traffic Control Tower
- Parallel taxiway system on east side

PHASING TABLE	
PHASE	KEY
PHASE I (2000-2005)	
PHASE II (2006-2010)	
PHASE III (2011-2020)	



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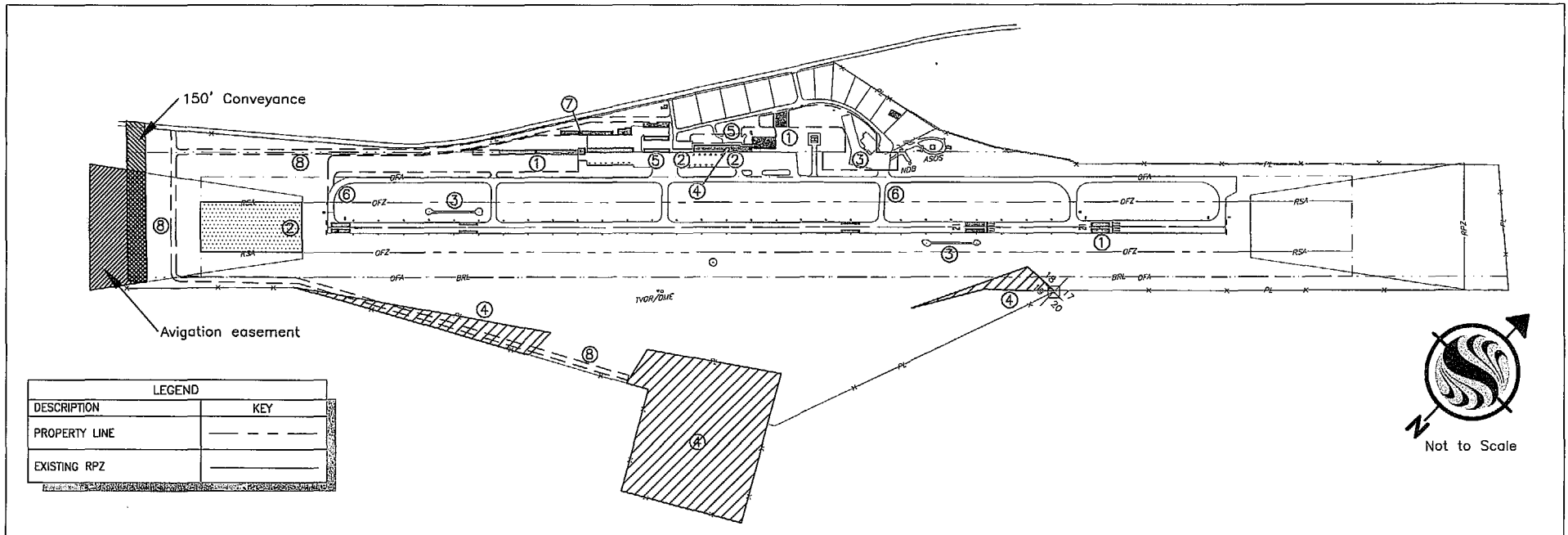
EXHIBIT 9-1
Airport Development Phasing

- Phase 1
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PHASE II (2006-2010)	
PHASE III (2011-2020)	



Nogales International Airport
Master Plan Update

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